

1

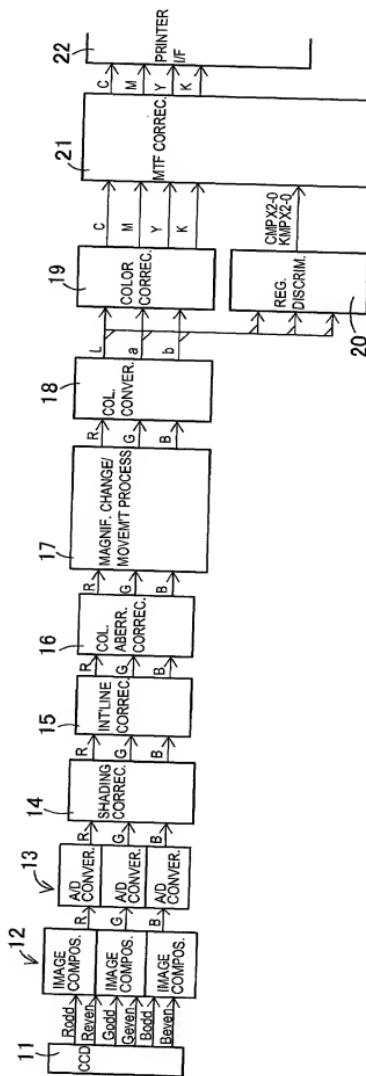


FIG. 2

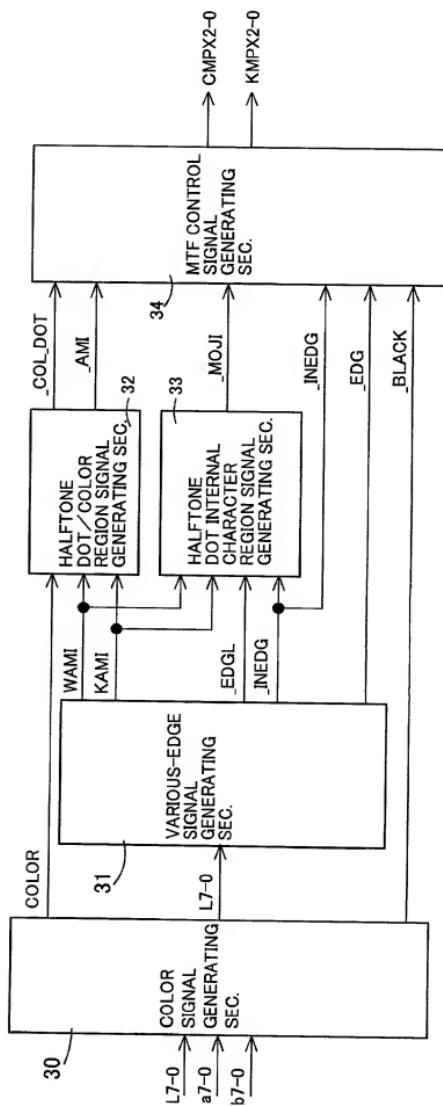


FIG. 3

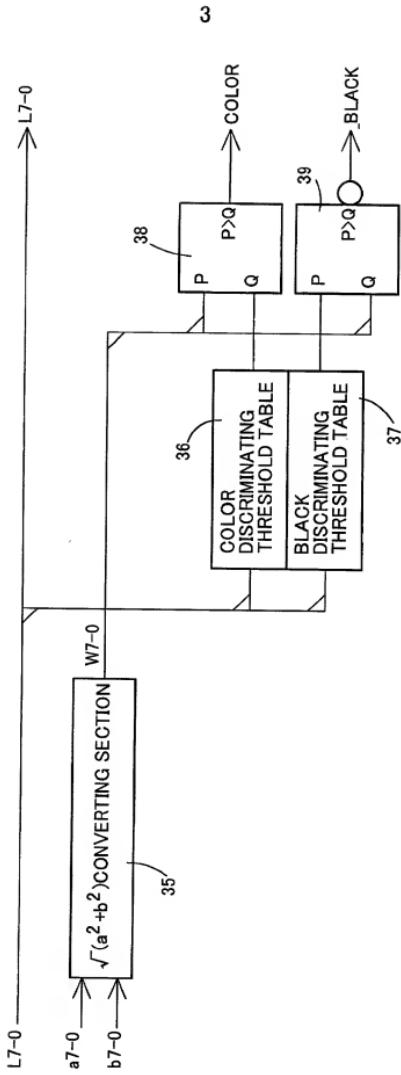


FIG. 4

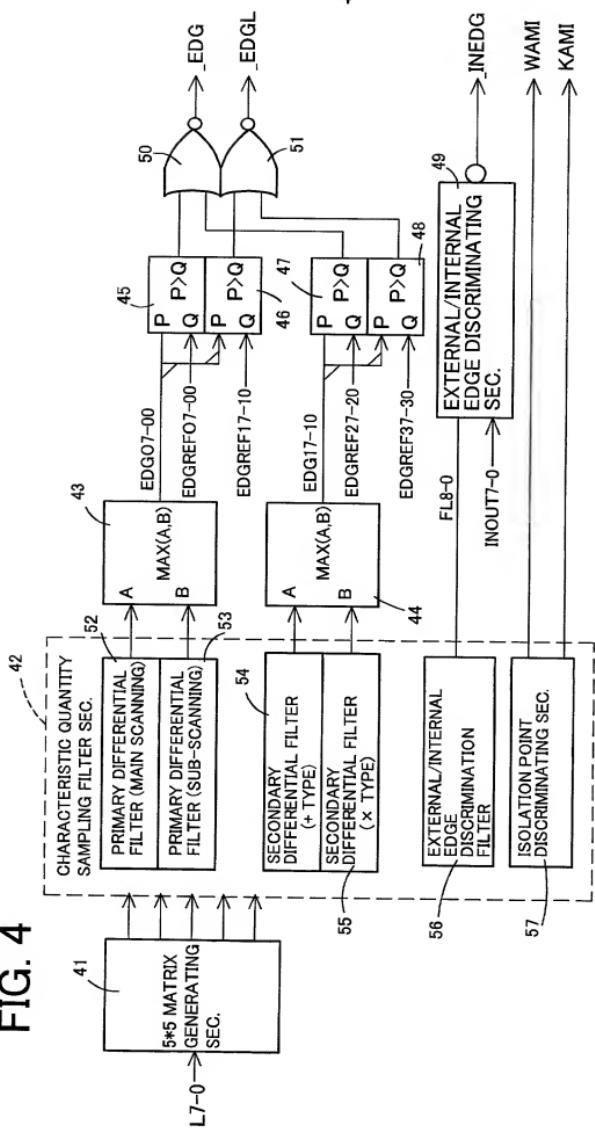


FIG. 5

PRIMARY DIFFERENTIAL FILTER  
(MAIN SCANNING DIRECTION)

16	0	0	0	-16
32	32	0	-32	-32
32	64	0	-64	-32
32	32	0	-32	-32
16	0	0	0	-16

FIG. 6

PRIMARY DIFFERENTIAL FILTER  
(SUB-SCANNING DIRECTION)

16	32	32	32	16
0	32	64	32	0
0	0	0	0	0
0	-32	-64	-32	0
-16	-32	-32	-32	-16

FIG. 7

SECONDARY DIFFERENTIAL FILTER  
(+ TYPE)

0	0	1	0	0
0	0	0	0	0
1	0	-4	0	1
0	0	0	0	0
0	0	1	0	0

FIG. 8

SECONDARY DIFFERENTIAL FILTER  
( $\times$  TYPE)

1	0	0	0	1
0	0	0	0	0
0	0	-4	0	0
0	0	0	0	0
1	0	0	0	1

FIG. 9

EXTERNAL/INTERNAL EDGE  
DISCRIMINATING FILTER

1	0	1	0	1
0	0	0	0	0
1	0	-8	0	1
0	0	0	0	0
1	0	1	0	1

FIG. 10

FIGURE - FIGURE

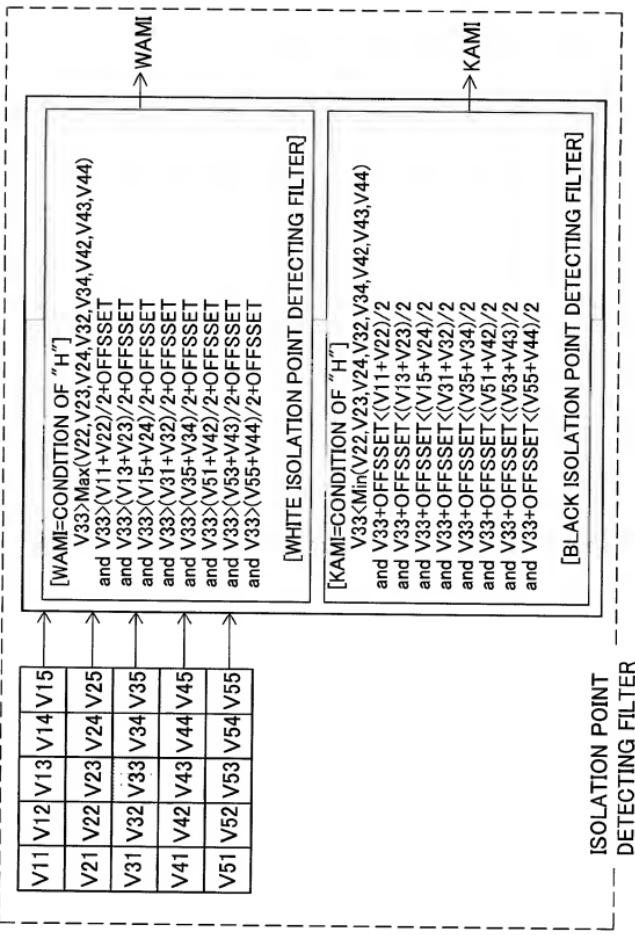


FIG. 11

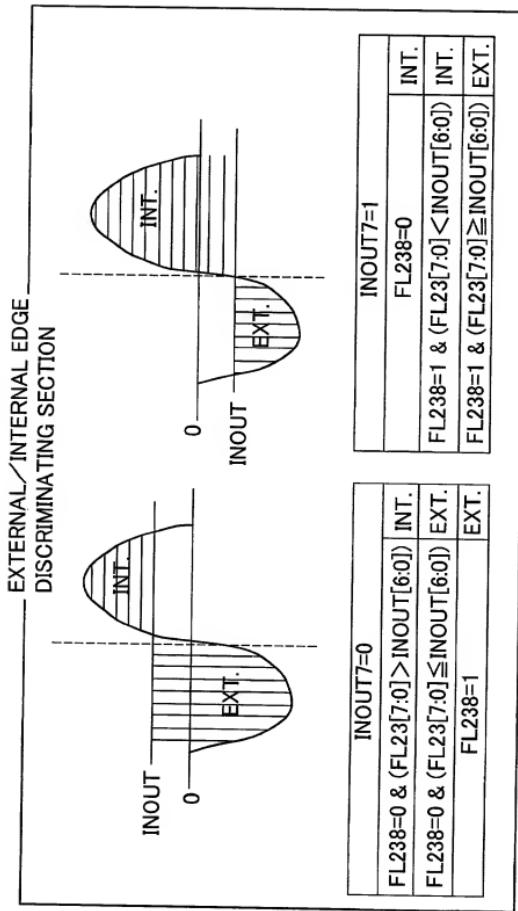


FIG. 12

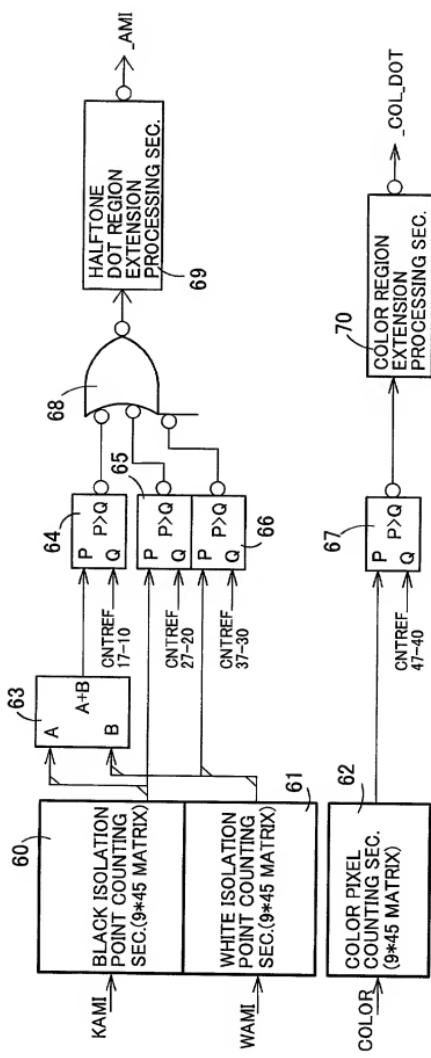


FIG. 13

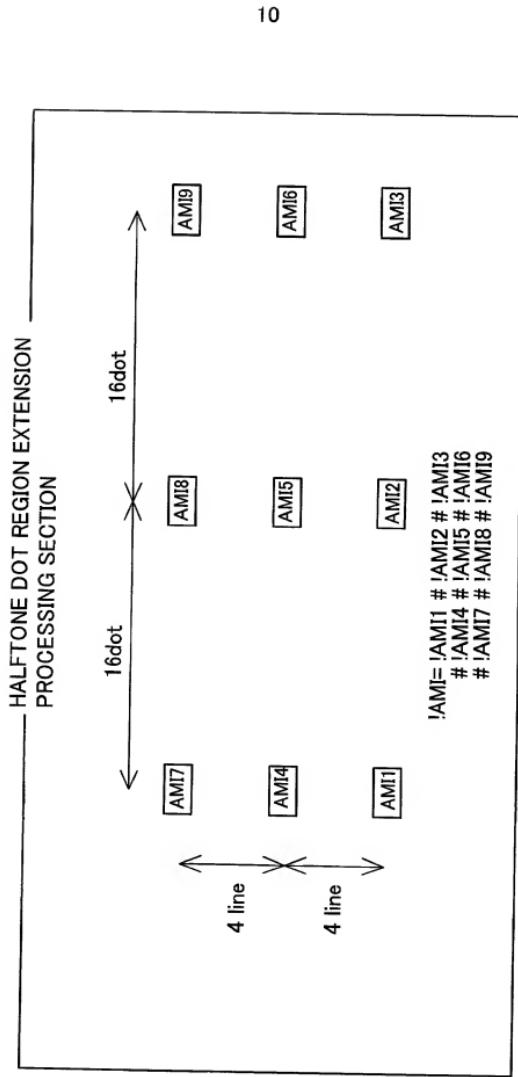


FIG. 14

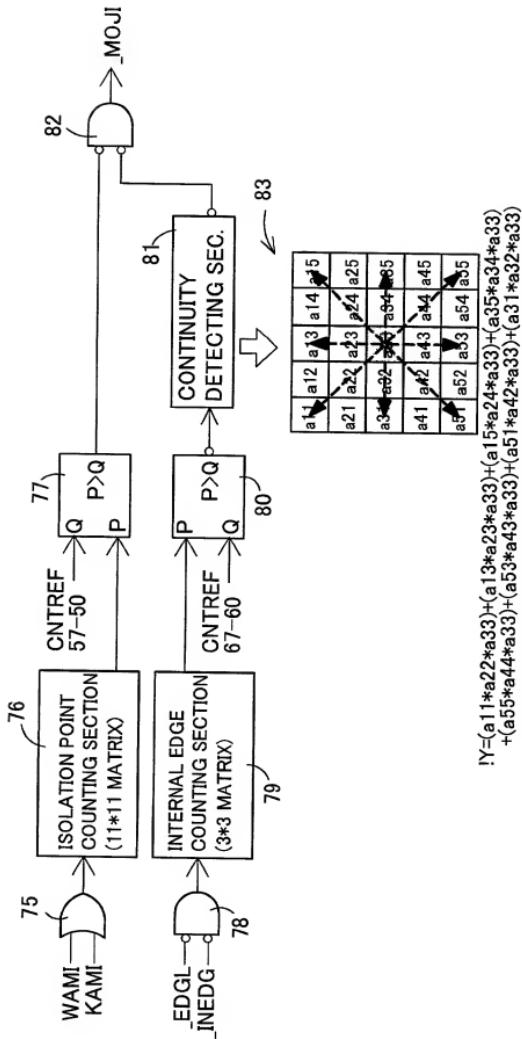


FIG. 15

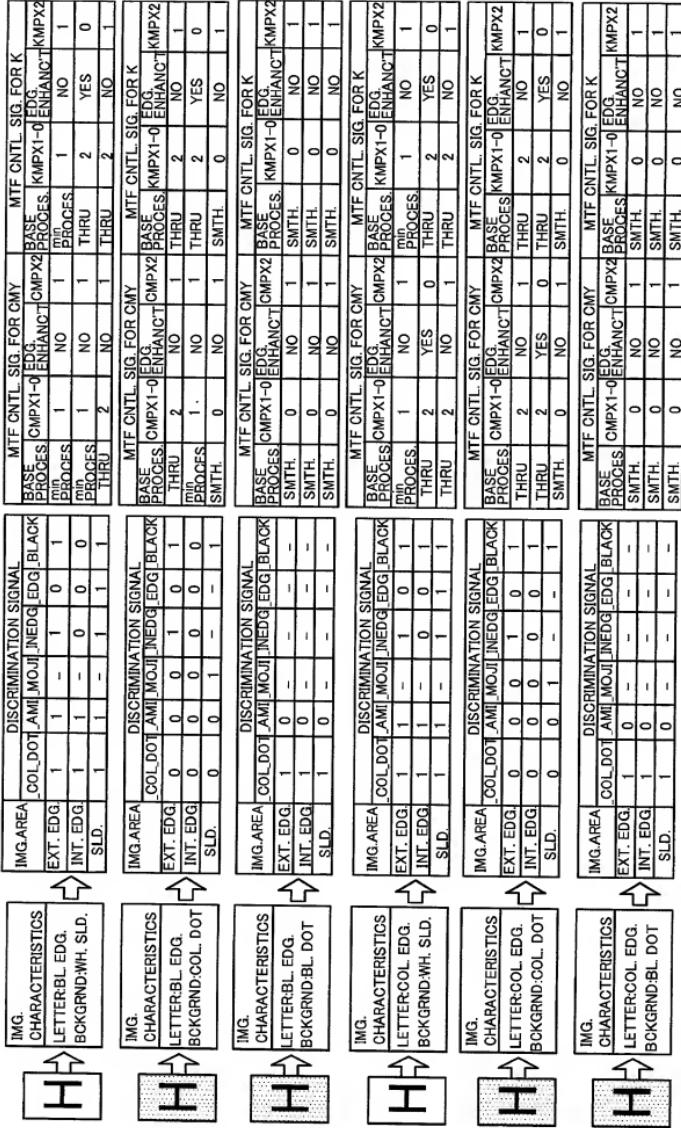


FIG. 16

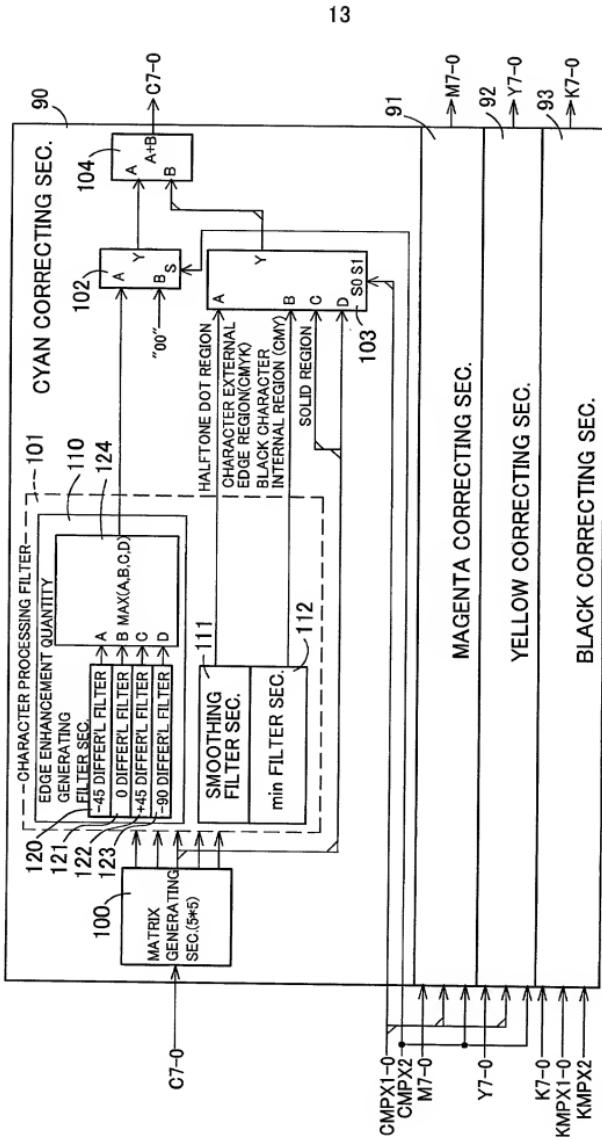


FIG. 17

-45 DEGREE DIFFERENTIAL FILTER

1	0	0	0	0
0	0	0	0	0
0	0	-2	0	0
0	0	0	0	0
0	0	0	0	1

FIG. 18

0 DEGREE DIFFERENTIAL FILTER

0	0	0	0	0
0	0	0	0	0
1	0	-2	0	1
0	0	0	0	0
0	0	0	0	0

FIG. 19

+45 DEGREE DIFFERENTIAL FILTER

0	0	0	0	1
0	0	0	0	0
0	0	-2	0	0
0	0	0	0	0
1	0	0	0	0

FIG. 20

+90 DEGREE DIFFERENTIAL FILTER

0	0	1	0	0
0	0	0	0	0
0	0	-2	0	0
0	0	0	0	0
0	0	1	0	0

FIG. 21

SMOOTHING FILTER

1	2	2	2	1
2	4	4	4	2
2	4	4	4	2
2	4	4	4	2
1	2	2	2	1

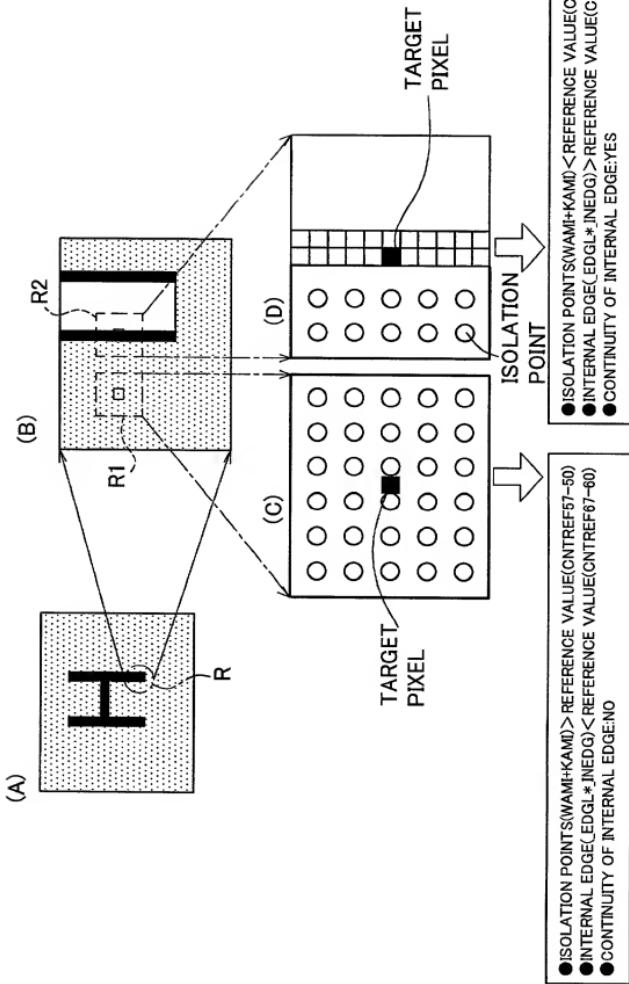
FIG. 22

min FILTER

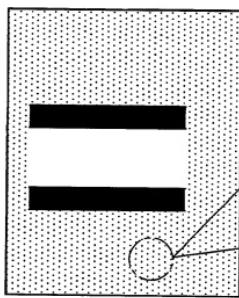
a11	a12	a13	a14	a15
a21	a22	a23	a24	a25
a31	a32	a33	a34	a35
a41	a42	a43	a44	a45
a51	a52	a53	a54	a55

→  $a_{33} = \min(a_{11}, a_{12}, a_{13}, a_{14}, a_{15}, a_{21}, a_{22}, a_{23}, a_{24}, a_{25}, a_{31}, a_{32}, a_{33}, a_{34}, a_{35}, a_{41}, a_{42}, a_{43}, a_{44}, a_{45}, a_{51}, a_{52}, a_{53}, a_{54}, a_{55})$

FIG. 23

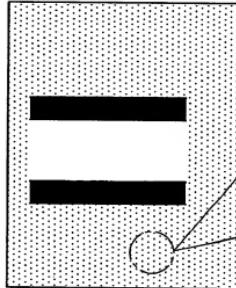


**FIG. 24A**  
PRIOR ART  
BLACK HALFTONE DOT INTERNAL  
BLACK CHARACTER IMAGE



(DISCRIMINATED AS BLACK  
HALFTONE DOTS)  
CMY : SMOOTHING PROCESSING  
K : SMOOTHING PROCESSING

**FIG. 24B**  
COLOR HALFTONE DOT INTERNAL  
BLACK CHARACTER IMAGE



(DISCRIMINATED AS COLOR  
HALFTONE DOTS)  
CMY : SMOOTHING PROCESSING  
K : SMOOTHING PROCESSING

(ERRONEOUSLY DISCRIMINATED AS  
BLACK CHARACTER)  
CMY : MIN PROCESSING  
K : EDGE ENHANCEMENT  
(DISCRIMINATED AS COLOR  
HALFTONE DOTS)  
CMY : SMOOTHING PROCESSING  
K : SMOOTHING PROCESSING

(ERRONEOUSLY DISCRIMINATED  
AS COLOR CHARACTER)  
CMY : EDGE ENHANCEMENT  
K : EDGE ENHANCEMENT  
PROCESSING

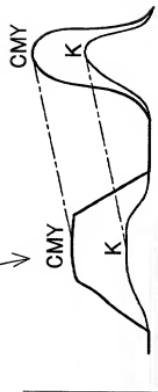
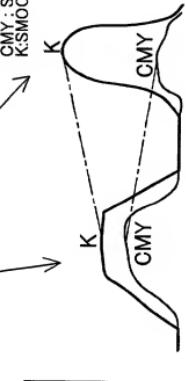


FIG. 25

